Ghost Prawns (Sub-Family Luciferinae) in Hawaii

ROBERT W. HIATT[1]

SPECIMENS OF THE ghost prawn, *Lucifer faxonii* Borradaile, have been found to constitute a significant item of the diet of the local baitfish "nehu," *Anchoviella purpurea* (Fowler). The prawn was especially abundant in nehu taken from the Ala Wai Canal in Honolulu and less abundant in nehu caught in a fish pond supplied with tidal water from the West Loch of Pearl Harbor. Plankton tows subsequently made in these localities showed the prawn to be very abundant in the Ala Wai Canal from January to August and to be less abundant during this period in Pearl Harbor. Plankton tows also disclosed the presence of very small numbers of this species (8 specimens in 6,700 gallons of water strained in June) in fish ponds on the leeward shore of the island of Molokai.

These findings represent the first records for this species in the Hawaiian Archipelago and the first record for the sub-family Luciferinae since Bate (1888: 468) cited Hawaii as a locality in which *L. typus* H. Milne-Edwards (= *L. reynaudii* Bate) was collected by members of the "Challenger" Expedition. The name *reynaudii* applied to the Hawaiian specimens by Bate has been consigned by Hansen (1919: 49), with some reservation, to the synonomy of *L. typus* H. Milne-Edwards because these specimens fall within the known range of variation for the latter species. Thus, it is probable that two of the six recognized species of this anomalous and widely distributed group reside in Hawaiian waters.

Only two other authenticated records, one for each species mentioned above, are known for the Central Pacific area. Edmondson (1923: 35) collected two specimens which he designated as *L. reynaudii* H. Milne-Edwards from surface tows in the lagoon at Fanning Island, about 1,400 miles south of Oahu. Upon re-examining the specimens, Edmondson (1925: 5) corrected his earlier identification, and referred them to *L. faxonii* Borradaile. These specimens have been rechecked recently and compared to the specimens taken in the Ala Wai Canal, and are undoubtedly *faxonii.* All the known records for this species in the Central Pacific were of specimens collected from waters less saline than ocean water, and those for Hawaii were obtained from specimens collected from brackish, estuarine localities. However, records elsewhere (Hansen, 1919: 63) indicate that this species is pelagic as well as an inshore inhabitant. *L. faxonii* is widespread in the waters about the Netherlands Indies and the West Indies, and in the middle Atlantic from latitude 33° N. to latitude 23° S.

L. typus (= *L. reynaudii* Bate) was taken in Hawaii at an undisclosed location by members of the "Challenger" Expedition, and Edmondson (*loc. cit.*) collected 1 male and 10 female specimens in a surface tow at night a few miles southwest of Wake Island, about 2,000 miles west and north of Oahu. These specimens have been checked and the male is undoubtedly *typus,* as evidenced by the long eyestalks, the position of the posterior margin of the large ventral protuberance on the telson, and the character of the petasma. However, all the females are immature;

[1] Department of Zoology and Entomology, University of Hawaii. Manuscript received February 6, 1947.

none has spines on the sixth abdominal segment, nor is the protuberance present on the telson. Thus, it is impossible to determine definitely whether they belong to *L. orientalis* Hansen or to *L. typus*. Since they were taken in the same tow with the male specimen identified as *typus,* it is probable that they are conspecific. The distribution of *typus* in the Pacific and Indian Oceans is confused since *orientalis* and *typus,* both long eyestalked species, were not separated until 1919 (Hansen, *op. cit.*). Thus, all records of long eyestalked species in these ocean areas prior to 1919 must be discarded as without specific value. *L. typus* is very abundant in the Atlantic from latitude 34° N. to latitude 40° S., and has been found in the Pacific and Indian Oceans near the Philippines, the South China Sea, the Bay of Bengal, and the Netherlands Indies, as well as at Wake Island and the Hawaiian Islands. This species, so far as is known, is not found inshore or in brackish water.

The known Hawaiian species may be separated by the following key:

A. Distance between the labrum and the insertion of the eyestalks somewhat or only a little longer than the eyestalks with eyes (the basal short joint of the stalks included). In the male, the terminal portion of the petasma moderately thick, and the processus ventralis shaped as a somewhat broad plate.....*L. typus* H. M.-Edw.

B. Distance between the labrum and the insertion of the eyestalks more than twice as long as the eyestalks with eyes. In the male, the terminal portion of the petasma tapers gradually from the base to the acute end, and the processus ventralis is needle-like, tapering to the very acute end.....*L. faxonii* Borrad.

REFERENCES

BATE, C. SPENCE. *Report on the Crustacea Macrura collected by H. M. S. "Challenger" during the years 1873–76.* Challenger Rpt., Zool., vol. 24. xc + 942 p., 150 pl., 76 fig. London, 1888.

EDMONDSON, C. H. *Crustacea from Palmyra and Fanning Islands.* Bernice P. Bishop Mus. Bul. 5. 43 p., 2 pl., 3 fig. Honolulu, 1923.

———, W. K. FISHER, H. L. CLARK, A. L. TREADWELL, and J. A. CUSHMAN. *Marine zoology of tropical Central Pacific.* Bernice P. Bishop Mus. Bul. 27. ii + 148 p., 11 pl., 11 fig. Honolulu, 1925.

HANSEN, H. J. *The Sergestidae of the "Siboga" Expedition.* Uitkomsten op Zoologisch, Botanisch, Oceanographisch en Geologisch Gebied, Monog. 38. 65 p., 5 pl., 14 fig. Leiden, 1919.